

REMARKS

The Official Action mailed September 25, 2002 has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time.

Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on January 12, 2000; March 31, 2000; June 28, 2001; October 31, 2001; and July 1, 2002. A further Information Disclosure Statement is submitted herewith and careful review and consideration of this Information Disclosure Statement is requested.

It is understood that claims 2-38 have been renumbered by the Patent Office to claims 1-37 respectively. In a telephone conference between the undersigned and Examiner Rodriguez on December 26, 2002 it was understood that the claims had been renumbered by a clerk at the Patent Office and it was agreed that the new numbering as claims 1-37 would be maintained. As a result, claims 1-37 are pending in the present application, of which claims 2-4, 8, 11 and 14 are independent. Claims 1-7, 10 and 13-14 have been amended herewith to further clarify the present invention and for the reasons set forth in detail below, all claims are believed to be in condition for allowance.

The Official Action rejects claims 1-37 as obvious based on the combination of U.S. Patent 5,059,013 to Jain, U.S. Patent 6,353,218 to Yamazaki et al. and U.S. Patent 6,100,961 to Shiraishi et al. As stated in MPEP § 2143-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved

as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Official Action asserts that Jain teaches an illumination system substantially as claimed. Yamazaki is cited to show an optical system for dividing and combining the laser beam and Shiraishi is cited to show irradiating a harmonic wave. The Official Action concludes that it would have been obvious to combine the teachings of Jain, Yamazaki and Shiraishi to achieve the present invention.

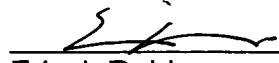
Applicant respectfully disagrees. Jain teaches a slit 12 located between the beam generating unit 10 and the lens 20, however, Jain fails to teach that the lens is a cylindrical lens group comprising a plurality of cylindrical lenses queuing in a first direction, and each of the cylindrical lenses extending in a second direction which is vertical to the first direction. Moreover, Yamazaki teaches a cylindrical lens group 203, a cylindrical lens 204, and a slit 205, however, the slit is located after the cylindrical lens group and the lens for overlapping the divided laser beams. Accordingly, it is respectfully submitted that one of skill in the art would not have been motivated to combine the teachings of Jain and Yamazaki to achieve the present invention. Therefore, it is submitted that a *prima facie* case of obviousness cannot be maintained. Favorable reconsideration is requested.

Moreover, it should be noted that Yamazaki fails to teach (i) that a slit is located between the beam generating unit and the cylindrical lens group as recited in claims 1, 7, and 10; (ii) that the slit is located for making edges of the emitted laser beam straight lines extending parallel to a longitudinal direction of each cylindrical lens as recited in claims 1, 7, and 10; (iii) that a width of said cylindrical lens group is narrower than a width of the emitted laser beam as recited in claim 2, since Yamazaki's cylindrical lens group 203 is wider than a width of the laser beam emitted from 201 (see Fig. 2A); and (iv) that top and bottom cylindrical lenses of said cylindrical lens group are shielded as recited in claims 3 and 13. Accordingly, even if Jain and Yamazaki are combined, it is believed that it is impossible to obtain the claimed invention. Thus, since the prior art references, taken alone or in combination, fail to teach or suggest all the claim

limitations, it is respectfully submitted that a *prima facie* case of obviousness cannot be maintained for this further reason. Favorable reconsideration is requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1-7, 10 and 13-14 as follows:

1. (Amended) A laser irradiation apparatus comprising:

a beam generating unit for emitting a laser beam;
a [lens] cylindrical lens group for dividing [a] the emitted laser beam in [one] a first direction, said cylindrical lens group comprising a plurality of cylindrical lenses queuing in said first direction, each of the cylindrical lenses extending in a second direction which is vertical to said first direction;
an optical system for overlapping divided laser beams; and
a slit located between said beam generating unit and said [lens] cylindrical lens group, for [forming] making edges [in] of the emitted laser beam[, which is vertical to said direction] straight lines extending parallel to said second direction of each cylindrical lens.

2. (Amended) A laser irradiation apparatus comprising:

a beam generating unit for emitting a laser beam;
[an optical system] a cylindrical lens group for dividing [a] the emitted laser beam in [one] a width direction, said cylindrical lens group comprising a plurality of cylindrical lenses queuing in said width direction, each of the cylindrical lenses extending in a longitudinal direction which is vertical to said width direction; and
an optical system for overlapping divided laser beams,
wherein [in said direction] a width of said [optical system for dividing] cylindrical lens group is narrower than [the maximum] a width of the emitted laser beam [before being divided].

3. (Amended) A laser irradiation apparatus comprising:

a beam generating unit for emitting a laser beam;
a cylindrical lens group for dividing [a] the emitted laser beam in [one] a first direction, said cylindrical lens group comprising a plurality of cylindrical lenses queuing in said first direction, each of the cylindrical lenses extending in a second direction; and

an optical system for overlapping divided laser beams,
wherein [a portion of the] top and bottom cylindrical [lens] lenses of said
cylindrical lens group [is] are shielded.

4. (Amended) An apparatus according to claim 1, wherein said [lens is a
cylindrical lens group] overlapped laser beam has a longitudinal shape extending in the
second direction.

5. (Amended) An apparatus according to claim 2, wherein said [optical system
for dividing said laser beam is a cylindrical lens group] overlapped laser beam has a
longitudinal shape extending in the longitudinal direction.

6. (Amended) An apparatus according to claim 3, wherein [at least cylindrical
lens comprises] top and bottom cylindrical lenses comprise quartz ground glass.

7. (Amended) A laser irradiation apparatus comprising:
a beam generating unit for [generating] emitting a laser beam such that a
cross section of said laser beam extends in both width and longitudinal directions;
a cylindrical lens group for dividing said emitted laser beam in [one of said
width and longitudinal directions] said width direction, said cylindrical lens group
comprising a plurality of cylindrical lenses queuing in said width direction, each of the
cylindrical lenses extending in said longitudinal direction;
an optical system for overlapping divided laser beams; and
a slit located between said beam generating unit and said cylindrical lens
group, for making at least an edge of the emitted laser beam a straight line which is
parallel to [a] said longitudinal direction of each cylindrical lens.

10. (Amended) A laser irradiation apparatus comprising:
a beam generating unit for [generating] emitting a laser beam such that a
cross section of said laser beam extends in both width and longitudinal directions;

a cylindrical lens group for dividing said emitted laser beam in [one of] said width [and longitudinal directions] direction, said cylindrical lens group comprising a plurality of cylindrical lenses queuing in said width direction, each of the cylindrical lenses extending in said longitudinal direction;

an optical system for overlapping divided laser beams; and

a slit located between said beam generating unit and said cylindrical lens group, for making at least one longitudinal [an] edge of the emitted laser beam [in] a straight line which is vertical to [a] said width direction of said cylindrical lens group.

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13. (Amended) A laser irradiation apparatus comprising:

a beam generating unit for [generating] emitting a laser beam such that a cross section of said laser beam extends in both width and longitudinal directions;

a cylindrical lens group for dividing said laser beam in [one of] said width [and longitudinal directions;] direction; and

an optical system for overlapping divided laser beams,

wherein [an edge portion] top and bottom cylindrical lenses of said cylindrical lens group [is] are shielded for making edges of the emitted laser beam straight lines extending in said longitudinal direction.

14. (Amended) An apparatus according to claim 13, wherein said [edge portion of said cylindrical lens comprises] top and bottom cylindrical lenses comprise quartz ground glass.